

Prevalence of *Trichomonas vaginalis* amongst Young Women Attending General Hospital Kwoi, Jaba Local Government Area of Kaduna State, Nigeria

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ABSTRACT

Trichomonas vaginalis is one of the common non-viral sexually transmitted infections that infect both men and women worldwide. It is largely asymptomatic and its association with the risk of HIV transmission has made it a compelling Public health concern. Therefore this study aimed at determining the prevalence of *Trichomonas vaginalis* amongst young women attending General Hospital Kwoi, wherein the method used was the wet prep method prepared with a vagina swab and viewed microscopically respectively. The overall prevalence of *Trichomonas vaginalis* amongst young women attending General Hospital Kwoi was 24%(12/50). The occurrence of *Trichomonas vaginalis* amongst young women is likely to be high, authors advocate for the screening of young people.

Keywords: *Trichomonas vaginalis*; Prevalence; Sexually transmitted infection; Ectopic pregnancy; Uterus; Community; Young women; Hygiene; Vagina; Infertility; HIV; Reservoir.

1. Introduction

Trichomoniasis is the prevalent non-viral sexually transmitted infection in the world. *Trichomonas vaginalis* is caused by the flagellated anaerobe *Trichomonas vaginalis* (TV) a urogenital protozoan parasite infecting the urogenital tract of both male and female. It is a pear shaped organism with a central nucleus and four anterior Flagella and undulating membrane which extends about two-thirds of its Length. It exists only as a trophozoite form and measured 7-23µm long and 5-15µm wide. Humans are the only natural host of *Trichomonas vaginalis* (Wilkerson et al., 2011) and the organism can be found in the vagina, uterus and cervix in women as well as urethra and prostate gland in men. It has been reported to be 250 million cases worldwide annually (WHO 2004). In general, the infection is asymptomatic in men although it can be associated with urethral discharge and dysuria, while infected women can have different symptoms consisting of yellowish green froth discharge and dysuria. Infection by TV in women can lead to serious complications such as adverse pregnancy outcome e.g., low infant weight, infertility, low birth rate and cervical cancer (Schwebic et al., 2004). If the asymptomatic individuals are left untreated, it could lead to sequelae such as ectopic pregnancy, low birth rate, preterm birth, pelvic inflammation disease (PID), male and female infertility and increased risk of HIV acquisition, Recent studies have associated *T. vaginalis* to cervical cancer in women and prostate cancer in men (T.A Ajani et al., 2022). It is likely however that in asymptomatic individual, the infection persist for long, resulting in a potentially large reservoir of infection, high rate of re infection and a higher community prevalence, the potential impact of this on the spread of HIV could be considerable (Servillo et al., 2001). Moreover, studies have shown an increased risk of HIV transmission among individuals infected by *T. vaginalis* (Roger C. Tine et al., 2019). The mode of transmission is by sexual intercourse, mother to child and non-sexual contact by contact with contaminated materials, though it is rare in most cases of asymptomatic (Kelvin et al., 2009). The mode of transmission is predominantly via unprotected sex with an

infected person, so it's typically found in sexually active individuals, but might also be spread via fingers after masturbation (Roger C. Tine *et al.*, 2018). *Trichomonas vaginalis* is very heterogeneous and depends on several factors, it is established that socioeconomic status, age, hygiene habits, sexual behavior, phase of menstrual cycle and other concomitant sexually transmitted infections can play a key role on the disease burden (Roger C. Tine *et al.*, 2018). Trichomoniasis is site specific and cannot survive outside the urogenital system.

1.1. Study Objectives

1. Determine the prevalence rate of *Trichomonas vaginalis* among women attending General Hospital Kwoi.
2. To determine the age range having the highest rate of infection by *Trachomonas vaginalis*.
3. To investigate the risk indicators for Trichomoniasis in women.
4. To create awareness on the devastating effect of *Trachomonas vaginalis* to younger women.
5. To make necessary recommendations on the preventive and control measures against *Trachomonas vaginalis*.

2. Material and Method

2.1. Area of Study

The area of study is Kwoi. Kwoi is a large town in Southern Kaduna, Northwest Nigeria. Located in Jaba Local Government Area with an estimated population of 177,000 people. Kwoi has latitude of 7°27'26.8"N (9.4574500°) and a longitude of 8°00'2466 (8.0068400°). Kwoi is a Christian dominated area with the people speaking the Hyam language (Ham tribe). Other tribes residing in Kwoi include Yoruba, Igbo, Hausa, Bajju, etc. It has primary and secondary schools as well as Health facilities.

2.2. Population of the Study

The population of this study was carried out among young women attending General Hospital Kwoi. The hospital was founded in 1st June, 1979 and has since then been providing quality healthcare to the inhabitants and its environs.

2.3. Sample Size

The sample collected for this research was vagina swab and 50 samples were collected for the research. The sample was collected amongst young women of ages 18-30, a random sampling technique was employed to ensure a good and fair average sample was attained.

2.4. Inclusion Criteria

Females of age 18-30 were the only ones who samples were collected. Women of older age, teenagers and children were not included. Neither were men included.

2.5. Materials and Reagents

Materials and Reagents used in collection and processing of sample are:

* High vagina swab stick.

- * Gloves.
- * Speculum.
- * Grease free glass slide and cover slip.
- * Normal saline.
- * Microscope.
- * Pipette/Applicator stick.

2.6. Procedure for Sample Collection

The young women were told of the processes involved in the sample collection, their permissions were obtained and the following procedures were carried out:

- * A specimen collection room with bed was provided.
- * Each woman took turn in entering the room and was told to remove garment and lay on the bed with legs spread wide.
- * A speculum was used to aid in opening the vagina.
- * The labelled sterile swab stick was inserted into the vagina, avoiding the walls of the vagina.
- * The sample was collected and swab stick was recapped immediately.
- * Samples were immediately taken to parasitology unit for processing.

2.7. Method Used For Sample Processing

Method used for sample processing is the wet method first described by Donne in 1836. Using the collected swab exudate, glass slide and normal saline and examined under the microscope.

2.8. Wet Mount Preparation Procedure

Materials/Reagents:

- * Normal saline.
- * HVS.
- * Glass slide/coverslip.
- * Microscope.

Procedure

- * An exudate of the vagina swab was placed on the clean grease free glass slide.
- * A drop of normal saline was added and emulsified with an applicator stick.
- * It was covered with a coverslip.
- * It was examined using x10 and x40 objective lens to confirm.

Precautions

- * The researcher made sure to collect vagina swab without touching the walls of the vagina.
- * The researcher made sure that the sample wasn't mixed with any faecal substance to avoid mistaking *Trichomonas hominis* for *Trichomoniasis vaginalis*.
- * The researcher also made sure to use sterile saline solution checked by the laboratory to avoid contamination of motile organisms which can be mistaken for *Trichomonas vaginalis*.

3. Results

3.1. Data Analysis and Presentation

Table 1. General percentage of prevalence of *Trichomonas vaginalis* amongst young women attending General Hospital Kwoi

Number of Samples	Number of Positive Samples	Number of Negative Samples
50	12(24%)	38(76%)

Table 2. The distribution percentage of *Trichomonas vaginalis* amongst young women attending General Hospital Kwoi based on age groups (15-35)

Age Range	Number of Samples	Number of Positive Samples	Number of Negative Samples
15-20	8	4(50%)	4(50%)
21-25	20	6(30%)	14(70%)
26-30	10	2(20%)	8(80%)
31-35	12	0(0%)	12(100%)

4. Discussion

Trichomonas vaginalis is a sexually transmitted infection which causes abnormal vaginal discharge and itching, it also destroys the pH and normal Flora of the vagina. About 250 million estimated cases are reported annually especially in women (WHO 2022). In this research a total of 50 vagina swab Samples were collected randomly amongst young women in General Hospital Kwoi, Jaba Local Government Area of Kaduna state and processed by the wet mount method described by Cheesbrough (1999). Data collected was analyzed by sample percentage.

Table 1 shows the prevalence of *Trichomonas vaginalis* with a prevalence rate of 12(24%) positive and 38(76%) negative. Table 2 shows the prevalence of *Trichomonas vaginalis* based on age groups with age group 21-25 having the highest prevalence with 30% to others.

5. Conclusion

This study concludes that 50 number of samples from young women of age groups 15-35 with the highest prevalence rate from age group 21-25(6, 30%) and lowest prevalence rate from age group 31-35 with no positive sample.

6. Future Suggestions

(a) Drugs should be made available for patients especially age 21 and above; (b) Awareness should be created on sexual habits to reduce the risk of Trichomoniasis and other sexually transmitted infections; (c) Infected patients should be educated on the adverse effects of *Trichomonas vaginalis*; (d) Proper sanitation measures should be put in place by the government to check and enforce the clean environment in our homes and offices rest rooms.

Declarations

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Competing Interests Statement

The authors declare no competing financial, professional, or personal interests.

Consent for publication

The authors declare that they consented to the publication of this study.

Authors' contributions

All the authors took part in literature review, analysis, and manuscript writing equally.

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